

## DESCRIPTION OF TABLES AND CHARTS.

Table I gives the data ordinarily needed for climatological studies for about 158 Weather Bureau stations making simultaneous observations at 8 a. m. and 8 p. m., daily, 75th Meridian Time, and for about 41 others making only one observation. The altitudes of the instruments above ground are also given.

Table II gives a record of precipitation, the intensity of which at some period of the storm's continuance equaled or exceeded the following rates:

Duration (minutes).....	5	10	15	20	25	30	35	40	45	50	60
Rates per hour (inches).....	3.00	1.80	1.40	1.20	1.08	1.00	0.94	0.90	0.87	0.84	0.88

It is impracticable to make this table sufficiently wide to accommodate on one line the record of accumulated falls that continue at an excessive rate for several hours. In this case *the record is broken at the end of each 50 minutes*, the accumulated amounts being recorded on successive lines until the excessive rate ends.

In cases where no storm of sufficient intensity to entitle it to a place in the full table has occurred the greatest precipitation of any single storm has been given, also the greatest hourly fall during that storm.

The tipping-bucket mechanism is *dismounted* and removed when there is danger of snow or water freezing in the same. Table II records this condition by entering an asterisk (\*).

Table III gives, for about 30 stations of the Canadian Meteorological Service, the means of pressure and temperature, total precipitation and depth of snowfall, and the respective departures from normal values except in the case of snowfall.

Chart I.—Hydrographs for several of the principal rivers of the United States.

Chart II.—Tracks of centers of high areas; and

Chart III.—Tracks of centers of low areas. The roman numerals show the chronological order of the centers. The figures within the circles show the days of the month; the letters *a* and *p* indicate, respectively, the observations at 8 a. m. and 8 p. m., 75th Meridian Time. Within each circle is also given (Chart II) the last three figures of the highest barometric reading, or (Chart III) the lowest reading, reported at or near the center at that time, and in both cases as reduced to sealevel and standard gravity.

Chart IV.—Temperature departures. This chart presents the departures of the monthly mean temperatures from the monthly normals. The normals used in computing the departures were computed for a period of 33 years (1873 to 1905) and are published in Weather Bureau Bulletin "R," Washington, 1918. Stations whose records were too short to justify the preparation of normals in 1918 have been provided with normals as adequate records became available, and all have been reduced to the 33-year interval 1873–1905. The shaded portions of the chart indicate areas of positive departures and unshaded portions indicate areas of negative departures. Generalized lines connect places having approximately equal departures of like sign. This chart of monthly

temperature departures in the United States was first published in the MONTHLY WEATHER REVIEW for July, 1919.

Chart V.—Total precipitation. The scale of shades showing the depth is given on the chart. Where the monthly amounts are too small to justify shading and over sections of the country where stations are too widely separated or the topography is too diversified to warrant reasonable accuracy in shading, the actual depths are given for a limited number of representative stations. Amounts less than 0.005 inch are indicated by the letter T, and no precipitation by 0.

Chart VI.—Percentage of clear sky between sunrise and sunset. The average cloudiness at each Weather Bureau station is determined by numerous personal observations between sunrise and sunset. The difference between the observed cloudiness and 100 is assumed to represent the percentage of clear sky, and the values thus obtained are the basis of this chart. The chart does not relate to the nighttime.

Chart VII.—Isobars and isotherms at sealevel and prevailing wind directions. The pressures have been reduced to sealevel and standard gravity by the method described by Prof. Frank H. Bigelow on pages 13–16 of the REVIEW for January, 1902. The pressures have also been reduced to the mean of the 24 hours by the application of a suitable correction to the mean of the 8 a. m. and 8 p. m. readings at stations taking two observations daily, and to the 8 a. m. or the 8 p. m. observation, respectively, at stations taking but a single observation. The diurnal corrections so applied will be found in the Annual Report of the Chief of the Weather Bureau, 1900–1901, volume 2, Table 27, pages 140–164.

The isotherms on the sealevel plane have been constructed by means of the data summarized in chapter 8 of volume 2 of the annual report just mentioned. The correction,  $t_a - t$  or temperature on the sealevel plane minus the station temperature as given by Table 48 of that report, is added to the observed surface temperature to obtain the adopted sealevel temperature.

The prevailing wind directions are determined from hourly observations at the great majority of the stations; a few stations having no self-recording wind-direction apparatus determine the prevailing direction from the daily or twice-daily observations only.

Chart VIII.—Total snowfall. This is based on the reports from regular and cooperative observers and shows the depth in inches and tenths of the snowfall during the month. In general, the depth is shown by lines inclosing areas of equal snowfall, but in special cases figures are also given. Chart VIII is published only when the general snow cover is sufficiently extensive to justify its preparation.

Chart IX.—Average values of pressure, temperature, and prevailing wind directions, and storm tracks over the North Atlantic Ocean, *for the corresponding month of last year*.

TABLE I.—Climatological data for Weather Bureau Stations, October, 1916.

Districts and stations.	Elevation of instruments.			Pressure.						Temperature of the air.						Precipitation.			Wind.			Average cloudiness, tenths.			Snow on ground at end of month.														
				Station, reduced to mean of 24 hours.		Sea level, reduced to mean of 24 hours.		Departure from normal.		Mean maximum.		Mean minimum.		Greatest daily range.		Mean relative humidity.		Mean wet thermometer.		Total.		Departure from normal.		Days with 0.01 inch or more.		Total movement.		Miles per hour.		Maximum velocity.		Clear days.		Partly cloudy days.		Cloudy days.		Total snowfall.	
	Ft.	Ft.	Ft.	In.	In.	"F.	"F.	"F.	"F.	Date.	"F.	"F.	"F.	"F.	"F.	%	In.	In.	Miles.																				
New England.																																							
Eastport.....	76	67	85	30.00	30.09	+0.09	+0.09	48.4	+ 1.8	73	6	56	30	18	41	29	44	40	78	2.73	- 1.1	8	7,296	s.	46	se.	20	11	9	11	5.5	0.5							
Greenville.....	1,070	6		28.90	30.08	-	-	45.7	-	81	5	57	22	19	35	40	28	2.87	- 1.1	10	11,497	sw.	63	nw.	14	15	2	0	4.4										
Portland, Me.....	103	82	117	30.01	30.13	+ .09	+ .09	50.4	+ 1.3	70	6	59	32	18	42	31	45	39	70	1.29	- 2.4	10	11,497	n.	49	w.	17	14	1	10	5.0	T.							
Concord.....	288	70	79	29.82	30.14	+ .09	+ .09	49.6	+ 0.9	83	5	63	27	27	36	44	-	-	-	1.34	- 1.9	10	3,772	n.	48	s.	13	10	11	10	5.0								
Burlington.....	404	11	48	29.67	30.12	+ .08	+ .08	48.2	+ 1.3	76	5	58	21	18	38	32	-	-	1.43	- 1.7	10	8,993	s.	46	sw.	17	10	13	8	5.3									
Northfield.....	876	12	60	29.17	29.13	+ .09	+ .08	45.8	+ 2.2	82	5	60	23	23	32	49	40	37	80	2.09	- 0.4	8	5,708	s.	42	nw.	17	14	9	8	4.1								
Boston.....	125	115	188	29.99	30.13	+ .08	+ .08	55.4	+ 2.2	84	8	64	36	18	47	36	50	46	75	0.94	- 2.9	7	4,589	sw.	48	sw.	13	12	8	11	5.2								
Nantucket.....	12	94	90	30.12	30.13	+ .08	+ .08	56.4	+ 0.1	70	9	61	39	18	48	23	51	48	82	1.92	- 1.5	10	12,812	sw.	57	uw.	17	15	4	12	5.2								
Block Island.....	26	11	46	30.11	30.14	+ .09	+ .09	55.1	- 0.2	72	9	61	39	18	49	22	52	49	82	2.48	- 1.6	8	12,568	ne.	57	uw.	17	15	4	12	5.2								
Narragansett Pier.....	9							52.7	+ 0.6	74	9	62	39	18	44	22	52	49	82	2.48	- 1.6	8	12,568	ne.	57	uw.	17	15	4	12	5.2								
Providence.....	160	215	251	29.96	30.13	+ .08	+ .08	53.9	+ 1.7	83	9	64	33	18	44	38	49	46	77	2.39	- 1.4	9	9,239	sw.	40	nw.	17	13	11	10	4.5								
Hartford.....	159	122	140	29.96	30.13	+ .07	+ .07	53.8	+ 2.6	83	8	65	33	18	43	36	47	42	72	1.08	- 2.8	5	5,388	s.	37	nw.	17	13	9	9	4.7								
New Haven.....	106	117	155	30.03	30.15	+ .09	+ .09	55.2	+ 2.4	84	9	66	36	18	45	36	49	46	75	2.05	- 1.9	5	7,105	n.	38	s.	10	14	10	7	3.8								
Middle Atlantic States.								56.2	+ 0.5										74	1.51	- 1.7														4.2				
Albany.....	97	102	115	30.02	30.13	+ 0.07	+ 0.07	51.4	+ 1.0	77	6	62	31	27	41	30	46	42	76	1.54	- 1.4	6	5,204	s.	35	se.	13	15	8	8	4.7								
Binghamton.....	871	10	69	29.21	30.15	+ .09	+ .09	50.9	+ 1.7	84	8	64	26	27	38	41	50	44	67	1.82	- 1.3	3	3,253	e.	26	w.	17	11	11	9	4.9								
New York.....	314	414	454	29.80	30.14	+ .08	+ .08	57.2	+ 1.6	84	9	65	39	10	50	34	50	44	67	0.63	- 3.1	3	11,504	nw.	63	sw.	17	15	7	9	4.3								
Harrisburg.....	374	94	104	29.76	30.17	+ .09	+ .09	54.4	+ 0.4	85	8	65	34	18	44	34	48	43	72	1.90	- 1.0	3	3,978	sw.	28	n.	9	18	6	7	3.0								
Philadelphia.....	117	123	190	30.04	30.17	+ .10	+ .10	58.6	+ 2.3	86	8	68	40	1	50	32	51	45	67	1.21	- 1.9	3	7,000	sw.	35	n.	10	16	8	7	4.0								
Reading.....	325	81	98	29.81	30.17	+ .10	+ .10	54.9	+ 0.8	84	8	64	30	27	40	38	46	43	72	1.24	- 2.0	4	4,416	sw.	31	se.	19	18	6	7	3.8								
Scranton.....	805	111	119	29.28	30.18	+ .10	+ .10	52.2	+ 0.8	81	8	64	30	29	50	53	49	76	0.91	- 2.0	4	4,714	sw.	36	w.	17	13	11	10	4.9									
Atlantic City.....	52	37	48	30.10	30.16	+ .09	+ .09	56.7	+ 2.1	82	9	66	39	18	50	26	53	53	49	76	1.28	- 2.4	6	6,047	sw.	28	s.	19	14	7	10	4.7							
Cape May.....	18	13	49	30.16	30.18	+ .11	+ .11	57.5	- 2.1	82	9	66	39	18	50	26	53	53	49	76	0.90	- 2.4	6	6,361	ne.	34	se.	19	13	12	10	4.3							
Sandy Hook.....	22	10	57	30.12	30.14	-	-	57.4	-	84	9	64	43	18	51	29	52	48	74	0.92	-	4	11,491	s.	52	s.	19	17	7	6	3.9								
Trenton.....	190	159	183	29.94	30.14	-	-	60.1	-	84	9	66	36	1	46	34	49	44	72	0.93	- 2.4	4	8,081	n.	44	nw.	17	14	11	9	3.9								
Baltimore.....	123	100	113	30.03	30.16	+ .08	+ .08	57.6	+ 0.1	80	8	67	40	1	48	28	51	46	71	1.61	- 1.4	4	4,770	n.	27	n.	10	17	6	8	3.9								
Washington.....	112	62	85	30.03	30.15	+ .07	+ .07	56.6	+ 0.8	87	8	68	35	27	45	32	50	45	75	1.76	- 1.3	9	3,967	sw.	26	sw.	20	17	8	6	3.9								
Lynchburg.....	681	153	188	29.41	30.16	+ .07	+ .07	57.7	+ 0.8	89	7	71	33	11	45	36	49	45	72	2.22	- 1.2	5	4,545	n.	63	ne.	19	16	10	14	4.6								
Norfolk.....	91	170	205	30.04	30.14	+ .07	+ .07	63.0	+ 1.7	80	9	69	44	15	57	53	58	76	2.62	- 1.3	10	10,505	ne.	44	s.	20	14	8	9	4.3									
Richmond.....	144	11	52	30.00	30.10	+ .08	+ .08	60.2	+ 0.4	80	9	72	37	12	49	35	53	58	76	1.44	- 1.2	4	5,375	sw.	32	w.	20	14	8	9	4.3								
Wytheville.....	2,283	49	55	27.77	30.16	+ .07	+ .07	52.6	- 1.0	81	8	65	23	27	40	35	47	44	81	2.18	- 1.0	9	3,697	n.	29	w.	13	16	8	7	3.7								
South Atlantic States.								64.5	+ 0.8										79	3.20	- 0.7														4.8				
Asheville.....	2,255	70	84	27.79	30.15	+ 0.06	+ 0.06	56.3	+ 1.0	80	7	68	33	22	44	39	49	45	76	2.86	- 0.1	9	5,832	se.	48	e.	18	16	8	7	3.8								
Charlotte.....	773	153	161	29.29	30.13	+ .05	+ .05	61.0	+ 0.1	85	9	71	39	11	51	29	54	49	71	2.64	- 0.5	9	8,834	ne.	46	sw.	20	15	10	13	3.7								
Hatteras.....	11	50	30	30.10	30.10	+ .04	+ .04	66.5	+ 0.5	79	9	71	42	15	58	-	-	1.84	1.42	- 4.2	4	1.8	9	9,12,318	n.	48	n.	10	9	9	13	3.8							
Manteo.....	12	46						64.5	-										51	74	2.08	4	6,486	ne.	28	sw.	20	16	8	7	4.0								
Raleigh.....	376	103	110	29.73	30.13	+ .06	+ .06	61.8	+ 1.3	85	9	72	38	11	52	30	55	51	74	2.08	4	6,486	n.	32	ne.	14	13	8	10	4.7									
Wilmingtn.....	78	81	90	30.01	30.08	+ .03	+ .03	63.0	+ 1.7	85	9	74	43	11	57																								

TABLE I.—Climatological data for Weather Bureau Stations, October, 1916—Continued.

Districts and stations.	Elevation of instruments.		Pressure.		Temperature of the air.										Precipitation.		Wind.							
	Barometer above sea level.	Thermometer above ground.	In.	In.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°C.	In.	Miles.	Direction.	Miles per hour.	Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.	
					57.5 + 0.9									70	2.20 - 0.3									
<b>Ohio Valley and Tennessee.</b>	Ft.	Ft.	Ft.	In.	In.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°C.	In.	Miles.	Direction.	Miles per hour.	Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.	
Chattanooga.....	762	189	213	29.31	30.13	+0.04	61.7 + 0.9	87	72	36	21	51	31	48	69	4.12 + 1.3	8	4,620	w.	20	16	8	7	3.8
Knoxville.....	996	93	100	29.06	30.12	+0.03	59.4 + 1.3	87	71	33	22	54	30	48	73	1.97 + 0.6	2	3,136	w.	20	15	9	9	3.8
Memphis.....	399	76	97	29.69	30.12	+0.05	64.0 + 1.5	90	74	33	22	54	30	54	82	2.28 + 0.4	4	5,354	se.	19	22	5	5	3.5
Nashville.....	546	108	191	29.54	30.13	+0.05	60.8 + 0.5	90	73	32	21	48	30	52	83	2.67 + 0.2	5	5,380	ne.	20	19	7	8	3.4
Lexington.....	989	133	230	29.05	30.13	+0.05	57.6 + 1.1	88	78	33	22	47	32	52	82	2.04 + 0.2	6	9,449	se.	20	21	3	3	3.2
Louisville.....	525	219	255	29.55	30.13	+0.05	58.3 + 0.1	88	79	31	22	47	32	54	83	2.02 + 0.6	7	5,390	s.	20	19	5	7	3.4
Evansville.....	431	139	175	29.64	30.11	+0.03	60.0 + 2.0	91	71	31	22	48	33	51	83	2.05 + 1.0	8	7,525	s.	20	18	6	5	3.5
Indianapolis.....	822	194	230	29.22	30.11	+0.04	56.1 + 1.1	87	76	30	22	45	30	47	81	1.47 + 1.3	9	8,421	s.	20	13	13	13	4.2
Terre Haute.....	575	96	129	29.47	30.09	+0.01	56.4 + 1.1	89	72	31	22	45	32	48	82	1.53 + 0.5	10	8,858	se.	20	18	6	5	4.0
Cincinnati.....	628	11	51	29.44	30.13	+0.05	54.9 + 1.9	88	78	32	22	44	37	48	83	1.81 + 0.5	7	4,715	ne.	20	17	6	5	4.4
Columbus.....	824	173	222	29.26	30.13	+0.05	55.2 + 1.1	86	75	31	22	44	33	47	84	1.81 + 0.5	9	7,383	sw.	19	17	6	5	3.8
Dayton.....	899	181	216	29.14	30.10	+0.04	54.8 + 0.7	85	78	30	22	43	36	48	84	1.42 + 1.0	10	7,311	w.	19	15	8	7	3.8
Pittsburgh.....	842	353	410	29.23	30.15	+0.07	54.8 + 0.1	86	78	30	22	43	37	47	82	0.96 + 0.0	12	2,519	w.	20	23	4	3	4.3
Elkins.....	1,240	41	50	28.10	30.20	+0.09	51.6 + 0.2	83	78	30	22	43	31	44	81	2.31 + 0.1	8	3,249	se.	20	17	5	4	4.0
Parkersburg.....	633	77	84	29.50	30.16	+0.08	53.3 + 0.7	88	78	30	22	43	31	44	81	2.03 + 0.1	9	8,421	s.	20	17	5	4	4.0
<b>Lower Lake Region.</b>																							4.9	
Buffalo.....	767	247	289	29.26	30.10	+0.05	52.6 + 1.1	77	61	34	18	44	29	46	80	2.33 + 1.2	10	13,536	sw.	20	13	6	13	5.5
Canton.....	448	10	61	29.62	30.10	+0.05	48.2 + 1.6	79	58	31	18	42	30	41	81	2.16 + 1.1	10	8,455	w.	17	9	9	13	5.7
Oswego.....	335	76	91	29.72	30.10	+0.05	51.2 + 0.8	82	60	31	18	42	32	43	81	2.16 + 1.2	9	8,291	s.	20	17	9	9	5.5
Rochester.....	523	97	113	29.54	30.12	+0.07	51.9 + 1.1	84	62	22	18	42	34	45	82	1.93 + 0.9	10	6,155	sw.	16	10	8	13	5.5
Syracuse.....	597	97	113	29.47	30.12	+0.06	51.9 + 0.9	83	62	22	18	42	34	45	83	1.44 + 1.8	8	8,401	s.	20	9	10	12	5.5
Erie.....	714	130	166	29.32	30.16	+0.05	52.7 + 0.4	81	62	22	18	42	32	45	81	2.88 + 0.9	12	11,981	sw.	19	10	12	4	4.8
Cleveland.....	762	190	261	29.26	30.11	+0.05	52.7 + 0.4	83	62	22	18	42	31	45	81	2.19 + 0.5	9	10,432	sw.	13	12	11	6	4.4
Sandusky.....	620	62	103	29.41	30.10	+0.04	53.2 + 0.7	87	62	31	21	42	27	45	81	1.24 + 1.2	9	9,253	sw.	20	14	6	8	4.2
Toledo.....	628	208	243	29.42	30.10	+0.05	53.7 + 1.1	84	62	31	21	42	28	45	81	2.46 + 0.2	10	8,109	sw.	20	15	8	8	3.8
Fort Wayne.....	856	113	124	29.17	30.10	+0.05	53.0 + 0.7	86	62	31	21	42	28	46	81	1.63 + 1.0	10	6,773	sw.	20	15	4	2	4.4
Detroit.....	730	218	245	29.29	30.09	+0.05	52.9 + 1.2	85	62	31	21	42	28	46	82	2.48 + 0.1	12	9,068	sw.	20	14	7	10	4.7
<b>Upper Lake Region.</b>																							5.9	
Alpena.....	609	13	92	29.37	30.04	+0.01	46.0 + 0.1	85	57	34	20	24	32	42	80	3.34 + 0.1	17	8,872	nw.	16	9	10	12	6.0
Escanaba.....	612	54	60	29.35	30.02	+0.01	44.8 + 0.3	87	57	32	20	24	28	35	81	3.55 + 0.5	12	8,401	s.	20	16	5	16	6.1
Grand Haven.....	632	54	92	29.36	30.05	+0.02	49.2 + 1.0	86	51	32	20	24	31	41	81	3.30 + 0.8	14	9,611	s.	20	13	9	9	4.6
Grand Rapids.....	707	70	87	29.28	30.07	+0.03	51.1 + 1.0	84	51	30	20	24	31	42	81	2.16 + 1.2	9	8,291	s.	20	17	9	9	5.7
Houghton.....	684	62	99	29.25	29.58	+0.02	44.6 + 0.3	87	51	32	20	24	32	43	81	2.81 + 1.3	8	7,741	e.	20	25	6	4	21
Lansing.....	878	11	62	29.12	30.07	+0.04	49.7 + 1.0	84	51	32	20	24	32	43	81	2.53 + 0.3	12	4,800	sw.	20	16	13	7	3.3
Ludington.....	637	9	61	29.34	30.04	+0.04	48.0 + 1.0	85	51	32	20	24	32	43	81	2.53 + 0.3	12	4,800	sw.	20	16	13	7	3.3
Marquette.....	734	77	111	29.22	30.03	+0.02	45.5 + 0.7	87	51	32	20	24	32	43	81	3.30 + 0.8	14	9,611	s.	20	13	9	13	5.5
Port Huron.....	638	11	20	29.38	30.08	+0.04	49.9 + 0.4	85	51	32	20	24	32	43	81	2.39 + 1.0	16	7,510	nw.	20	14	5	13	5.8
Saginaw.....	641	48	82	29.36	30.06	+0.05	50.0 + 0.5	87	51	32	20	24	32	43	81	2.16 + 0.6	11	9,121	sw.	20	11	10	9	4.9
Sault Ste. Marie.....	614	11	61	29.32	30.03	+0.02	44.0 + 0.6	87	51	32	20	24	32	43	81	2.09 + 0.1	12	5,562	se.	20	13	5	4	22
Chicago.....	823	140	210	29.18	30.05	+0.03	53.4 + 1.2	87	51	32	20	24	32	43	81	2.09 + 2.2	16	7,562	se.	20	13	5	4	22
Green Bay.....	617	109	144	29.35	30.02	+0.04	47.6 + 0.5	80	51	32	20	24	32	43	81	2.73 + 2.4	14	9,763	s.	20	14	8	8	6.8
Milwaukee.....	681	119	133	29.30	30.05	+0.02	50.1 + 0.1	83	51	32	20	24	32	43	81	1.98 + 1.3	13	8,167	sw.	20	14	4	6	6.6
Duluth.....	1,133	11	47	28.77	30.01	+0.01	42.0 - 2.9	72	13	50	20	24	28	37	81	1.13 + 1.6	9	6,612	w.	20	16	4	18	3.4
<b>North Dakota.</b>																							5.7	
Moorhead.....	940	8	57	29.01	30.04	+0.04	42.0 - 0.8	73	3	53	22	21	38	30	82	0.41 + 1.7	5	6,518	nw.	16	16	5	10	4.6
Bismarck.....	1,074	8	57	28.26	30.08	+0.09	41.8 - 2.3	75	6	54	13	24	44	37	83	0.18 - 0.8	5	7,233	nw.	16	12	12	5	4.2
Devils Lake.....	1,482	11	44	28.41	30.02	+0.03	48.6 - 2.1	73	6	48	24	20	39	33	84	0.67 - 0.6	8	8,293	sw.	16	2	11	8	3.5
Grand Forks.....	835	12	89	28.60	30.06	+0.03	49.2 + 0.4	83	58	20	24	39	33	43	84	0.64 + 0.6	7	7,886	sw.	16	12	11	12	5.7
Williston.....	1,372	41	48	28.02	30.04	+0.06	40.0 - 2.9	72	13	50	20	24	39	42	84	0.63 - 0.1	4	6,053	w.	16	7	7	15	6.2
<b>Upper Mississippi Valley.</b>																							4.9	
Minneapolis.....	918	10	20																					

TABLE I.—Climatological data for Weather Bureau Stations, October, 1916—Continued.

Name and stations.	Elevation of instruments.		Pressure.		Temperature of the air.										Precipitation.		Wind.		Maximum velocity.		Cloudy days.		Average cloudiness, tenths.		Snow on ground at end of month.								
	Barometer above sea level.	Thermometer above ground.	In.	In.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	Miles.	Total.	Departure from normal.	Days with 0.01 inch or more.	Miles per hour.	Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.	Snow on ground at end of month.					
					Station, reduced to mean of 24 hours.	Sea level reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. + 2.	Maximum.	Departure from normal.	Date.	Mean maximum.	Minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew point.	Mean relative humidity.	Total.	Prevailing direction.	Direction.													
<i>Northern Slope.</i>	Fl.	Ft.	Ft.	In.	In.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	%	In.	In.	Miles.																
Billings.....	3,140	5	27.39	30.06	+0.08	41.8	-2.6	77	17	54	7	19	29	44	1.72	1.76	+0.5	5	5,782	sw.	36	14	9	8	9	8.4	...						
Havre.....	2,505	11	44	27.39	30.06	-3.7	74	13	51	4	5	28	40	30	1.01	+0.5	5	5,976	sw.	38	10	10	11	5.4	20.5	...							
Helena.....	4,110	87	114	25.86	30.12	+0.04	41.2	-2.8	73	16	51	15	19	31	33	34	28	2.06	+1.2	w.	23	11	11	11	5.4	T.	...						
Kalispell.....	2,962	11	34	27.00	30.11	+10	40.5	-2.0	67	16	53	15	19	28	36	34	29	0.62	-0.6	s.	2,918	27	31	13	12	6.4	1.7	...					
Miles City.....	2,371	26	48	27.54	30.13	-13	45.0	-1.5	78	13	56	20	20	32	45	36	28	0.58	-0.2	10	4,174	n.	37	11	10	11	5.7	1.1	...				
Rapid City.....	3,259	50	58	26.65	30.12	+11	44.4	-2.2	81	17	56	20	20	32	42	35	28	0.52	-0.6	9	6,370	w.	53	13	11	7	4.6	0.6	...				
Cheyenne.....	6,088	84	101	24.03	30.05	+04	42.9	-2.4	73	16	54	12	19	32	42	35	29	0.59	+1.2	10	9,205	w.	34	12	9	10	5.4	17.4	...				
Lander.....	5,372	60	68	24.05	30.10	+06	40.4	-1.7	73	17	55	3	21	26	40	33	28	0.46	+0.9	8	3,364	sw.	30	14	13	14	5.6	13.2	...				
Sheridan.....	3,190	10	47	23.16	30.13	-38.6	74	-13	33	7	24	27	46	33	28	0.85	2.85	+2.3	11	5,600	nw.	46	17	10	8	13	5.8	...					
Yellowstone Park.....	6,200	11	48	30.13	30.13	-11	35.4	-6.1	65	16	46	7	19	25	32	29	24	0.37	+2.3	5	6,511	w.	31	19	3	9	3.7	6.3	...				
North Platte.....	2,821	11	51	27.13	30.08	+06	49.4	-0.6	90	3	64	14	20	35	49	39	33	0.81	-0.3	5	6,511	w.	3	19	3	9	3.7	6.3	...				
<i>Middle Slope.</i>						55.5	0.0								63	1.42	-0.1										4.0	...					
Denver.....	5,292	106	113	24.76	30.04	+0.03	48.2	-3.8	80	6	60	18	19	36	38	39	30	58	1.92	+1.0	9	5,751	se.	34	16	7	8	4.2	6.	...			
Pueblo.....	4,685	80	86	25.32	30.01	+0.2	51.6	-0.7	83	2	64	20	20	37	52	40	31	0.71	0.9	4	4,409	nw.	43	18	6	7	3.7	4.9	...				
Concordia.....	1,392	50	58	30.04	+0.01	56.1	+0.7	91	2	68	21	20	44	37	46	40	64	1.06	-0.9	4	7,164	s.	32	13	9	9	4.5	1.8	...				
Dodge City.....	2,509	11	51	27.46	30.07	+0.05	56.2	+1.5	90	2	69	22	20	44	47	46	41	68	0.70	-0.6	6	8,639	s.	37	8	7	5	3.4	0.	...			
Wichita.....	1,358	158	158	28.58	30.02	+01	58.8	0.0	88	4	69	20	20	49	33	50	43	65	2.32	0.0	7	10,320	n.	41	19	15	8	8.5	T.	...			
Altus.....	1,410	5	5	28.54	30.03	-0.3	63.3	-0.6	91	5	76	29	20	51	52	40	39	2.40	0.9	9	8,344	sw.	32	19	5	7	3.7	3.7	...				
Muskogee.....	652	4	4	28.76	30.05	+0.02	62.4	+1.1	91	5	74	28	20	51	58	47	68	1.73	-0.1	5	9,842	s.	44	19	5	7	3.7	3.0	...				
Oklahoma.....	1,214	10	47	28.76	30.05	+0.02	62.4	+1.1	91	5	74	28	20	51	58	47	68	1.73	-0.1	5	9,842	s.	32	20	5	6	3.0	2.2	...				
<i>Southern Slope.</i>						62.7	+0.3								64	2.24	+0.4										3.0	...					
Abilene.....	1,738	10	52	28.23	30.02	+0.01	65.8	+1.6	88	8	78	32	20	54	34	55	48	63	3.31	+1.0	3	7,377	s.	34	sw.	22	20	6	5	3.1	...		
Amarillo.....	3,676	10	49	26.31	30.04	+0.04	57.3	+1.1	89	3	70	27	19	45	39	47	42	69	2.90	+1.2	7	8,091	s.	37	nw.	18	19	4	8	3.4	...		
Del Rio.....	1,044	64	71	29.02	30.00	+0.02	70.2	+0.3	81	2	80	41	21	60	34	41	37	60	0.42	-1.3	3	8,980	e.	36	nw.	19	18	11	2	2.7	...		
Roswell.....	3,566	75	85	26.40	30.00	+0.04	57.6	-1.9	88	2	72	31	20	43	43	47	39	60	2.31	+0.8	5	5,322	s.	32	nw.	28	20	5	6	3.0	...		
<i>Southern Plateau.</i>						57.5	-2.3								52	1.06	+0.5										2.2	...					
El Paso.....	3,762	110	133	26.20	29.93	+0.01	64.7	+2.3	89	5	77	49	26	52	38	51	40	49	1.07	+0.1	7	8,106	e.	41	nw.	12	23	7	1	1.9	...		
Santa Fe.....	7,013	57	66	23.29	29.97	+0.01	50.8	-0.8	71	3	60	30	25	41	28	40	32	57	2.76	+1.7	10	6,614	se.	36	sw.	23	14	12	5	3.7	...		
Flagstaff.....	6,908	8	57	22.36	29.95	+0.03	44.1	-0.6	69	31	57	21	20	32	47	38	31	61	2.00	-0.2	9	...	w.	40	sw.	24	18	9	4	2.8	...		
Phoenix.....	1,108	76	81	28.76	29.91	+0.03	66.2	-4.0	89	21	81	41	30	51	43	54	48	60	0.65	+0.3	2	3,304	e.	19	sw.	25	24	5	6	2.0	...		
Yuma.....	1,141	9	54	28.75	29.90	+0.03	68.5	-9.5	17	84	27	53	40	53	39	42	0.00	-0.2	0	3,782	w.	20	nw.	15	31	0	0	0.2	...				
Independence.....	9,910	11	42	26.00	30.00	+0.05	50.9	-8.4	78	16	66	26	3	35	41	30	50	0.84	+0.5	5	3,777	nw.	24	nw.	2	20	4	7	2.6	...			
<i>Middle Plateau.</i>						47.5	-3.3								58	1.78	+1.0										3.2	...					
Reno.....	4,532	74	81	25.50	30.05	+0.06	46.9	-2.8	76	21	61	24	24	33	44	37	27	53	1.13	+0.7	7	3,887	w.	36	w.	1	20	2	9	3.4	0.4	0.4	...
Tonopah.....	6,080	12	20	24.08	30.00		46.0	-3.7	74	16	60	24	23	37	27	37	27	52	1.35	+0.5	6	5,087	w.	37	nw.	18	16	10	5	3.4	0.0	...	
Winnebucca.....	4,344	18	56	25.66	30.08	+0.03	44.9	-3.7	74	16	60	18	23	30	46	36	28	62	1.42	+0.4	8	4,447	ne.	27	sw.	1	21	4	6	2.8	0.5	...	
Modena.....	5,479	10	43	24.62	29.99	+0.03	45.0	-5.1	69	21	59	20	25	31	42	36	27	57	2.18	+1.4	7	7,904	s.	42	s.	2	20	3	8	3.3	T.	...	
Salt Lake City.....	4,360	147	189	25.64	30.02	+0.01	49.8	-2.4	72	17	60	31	24	40	32	42	34	60	2.45	+1.0	8	5,345	nw.	34	se.	6	20	3	8	3.3	T.	...	
Grand Junction.....	4,602	82	90	25.40	30.00	+0.01	51.0	-2.3	75	6	63	32	29	35	48	43	36	62	2.12	+1.2	11	5,284	se.	33	sw.	18	18	7	6	3.4	0.0	...	
<i>Northern Plateau.</i>						47.9	-1.6								55	0.66	-0.9										3.8	...					
Baker.....	3,471	48	53	26.51	30.13	+0.05	44.0	-1.5	75	16	58	19	23	30	38	36	27	57	0.21	-0.7	5	4,908	se.	22	nw.	17	19	5	7	3.5	T.	...	
Boise.....	2,739	78	86	27.22	30.10	+0.04	48.7	-1.8	75	16	60	26	23	37	33	41	33	58	0.84	-0.4	3	3,269	w.	25	nw.	27	15	7	9				

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during October, 1916, at all stations furnished with self-registering gages.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Abilene, Tex.	15	7:00 a.m.	10:30 a.m.	1.09	7:28 a.m.	7:51 a.m.	0.01	0.11	0.22	0.44	0.58	0.67	.....	.....	.....	.....	.....	.....	0.40	0.37	0.44
Albany, N. Y.	19	.....	.....	1.01	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.37	0.35	0.39
Alpena, Mich.	12	.....	.....	0.59	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.52	0.50	0.52
Amarillo, Tex.	12	.....	.....	0.82	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.38	0.35	0.39
Anniston, Ala.	17	.....	.....	0.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.29	0.29	0.30
Asheville, N. C.	16	.....	.....	1.08	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.19	0.19	0.20
Atlanta, Ga.	29	.....	.....	1.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.19	0.19	0.20
Atlantic City, N. J.	19	.....	.....	0.92	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.15	0.15	0.16
Augusta, Ga.	18	.....	.....	0.74	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.05	0.05	0.06
Baker, Oreg.	7	.....	.....	0.08	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.32	0.32	0.24
Baltimore, Md.	19	.....	.....	1.29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.25	0.25	0.25
Bentonville, Ark.	15	.....	.....	0.97	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.10	0.10	0.11
Binghamton, N. Y.	20	5:43 p.m.	8:30 p.m.	0.71	6:48 p.m.	7:08 p.m.	0.02	0.28	0.30	0.49	0.57	.....	.....	.....	.....	.....	.....	.....	0.31	0.31	0.31
Birmingham, Ala.	18	.....	.....	0.73	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.20	0.20	0.20
Bismarck, N. Dak.	3	.....	.....	0.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.35	0.35	0.35
Block Island, R. I.	19	.....	.....	1.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.41	0.41	0.41
Boise, Idaho.	1	.....	.....	0.37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.29	0.29	0.29
Boston, Mass.	19	.....	.....	0.56	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.17	0.17	0.17
Buffalo, N. Y.	19	.....	.....	1.14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.24	0.24	0.24
Burlington, Vt.	20	.....	.....	0.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.20	0.20	0.20
Cairo, Ill.	18	.....	.....	0.88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.41	0.41	0.41
Canton, N. Y.	20	.....	.....	0.59	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.29	0.29	0.29
Charles City, Iowa.	12	.....	.....	0.31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.50	0.50	0.50
Charleston, S. C.	19	D. N. a.m.	9:50 a.m.	1.31	7:46 a.m.	8:46 a.m.	0.16	0.09	0.21	0.32	0.40	0.49	0.59	0.63	0.70	0.80	0.95	1.13	.....	.....	.....
Charlotte, N. C.	9	5:15 p.m.	6:20 p.m.	1.24	5:19 p.m.	5:49 p.m.	0.02	0.33	0.64	0.80	0.84	1.00	1.17	.....	.....	.....	.....	.....	.....	.....	.....
Chattanooga, Tenn.	19	.....	.....	0.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cheyenne, Wyo.	22-23	.....	.....	0.82	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.48	0.48	0.48
Chicago, Ill.	20	.....	.....	1.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.39	0.39	0.39
Cincinnati, Ohio.	18-19	.....	.....	0.93	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.37	0.37	0.37
Cleveland, Ohio.	19	.....	.....	0.90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.22	0.22	0.22
Columbia, Mo.	24	.....	.....	0.33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.28	0.28	0.28
Columbia, S. C.	18	.....	.....	0.77	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.56	0.56	0.56
Columbus, Ohio.	20	.....	.....	0.62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Concord, N. H.	19-20	.....	.....	1.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Concordia, Kans.	24	.....	.....	0.49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.01	0.01	0.01
Corpus Christi, Tex.	10	.....	.....	0.01	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dallas, Tex.	13	12:57 p.m.	3:25 p.m.	2.01	1:59 p.m.	2:57 p.m.	0.06	0.19	0.26	0.33	0.41	0.61	0.82	1.11	1.36	1.66	1.81	1.93	.....	.....	.....
Do.	13	3:59 p.m.	5:05 p.m.	0.69	4:14 p.m.	4:44 p.m.	0.03	0.14	0.30	0.37	0.43	0.55	0.64	.....	.....	.....	.....	.....	0.30	0.30	0.30
Davenport, Iowa.	12	.....	.....	0.61	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.27	0.27	0.27
Dayton, Ohio.	19	.....	.....	0.43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.21	0.21	0.21
Del Rio, Tex.	10	.....	.....	0.32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.16	0.16	0.16
Denver, Colo.	14-15	.....	.....	1.24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.16	0.16	0.16
Des Moines, Iowa.	28	.....	.....	0.76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.22	0.22	0.22
Detroit, Mich.	19	.....	.....	0.90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.26	0.26	0.26
Devils Lake, N. Dak.	16	.....	.....	0.13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.06	0.06	0.06
Dodge City, Kans.	24	.....	.....	0.42	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.16	0.16	0.16
Dubuque, Iowa.	24	.....	.....	1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.21	0.21	0.21
Duluth, Minn.	19	.....	.....	0.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.49	0.49	0.49
Eastport, Me.	20	.....	.....	1.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.33	0.33	0.33
Elkins, W. Va.	9	.....	.....	0.78	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.28	0.28	0.28
El Paso, Tex.	12	.....	.....	0.33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.01	0.01	0.01
Erie, Pa.	20	.....	.....	0.26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.23	0.23	0.23
Escanaba, Mich.	31	.....	.....	0.59	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.25	0.25	0.25
Eureka, Cal.	31	.....	.....	0.21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.11	0.11	0.11
Evansville, Ind.	18	.....	.....	0.87	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.17	0.17	0.17
Flagstaff, Ariz.	5-6	.....	.....	1.29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.22	0.22	0.22
Fort Smith, Ark.	16	.....	.....	0.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.15	0.15	0.15
Fort Wayne, Ind.	18	.....	.....	0.33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.16	0.16	0.16
Fort Worth, Tex.	15	.....	.....	0.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.16	0.16	0.16
Fresno, Cal.	4	.....	.....	0.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.16	0.16	0.16
Galveston, Tex.	17	.....	.....	0.09	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.31	0.31	0.31
Grand Haven, Mich.	20	.....	.....	0.37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.21	0.21	0.21
Grand Junction, Colo.	7	.....	.....	0.51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.41	0.41	0.41
Grand Rapids, Mich.	20	.....	.....	1.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.25	0.25	0.25
Green Bay, Wis.	31	.....	.....	0.51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.25	0.25	0.25
Hannibal, Mo.	24	.....	.....	0.59	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.34	0.34	0.34
Harrisburg, Pa.	19	.....	.....	1.21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.22	0.22	0.22
Hartford, Conn.	19	.....	.....	0.88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.45	0.45	0.45
Hatteras, N. C.	20	.....	.....	1.95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Havre, Mont.	2-3	.....	.....	0.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Helena, Mont.	2-3	.....	.....	0.76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Houghton, Mich.	16	.....	.....	0.81	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Houston, Tex.	10	3:45 p.m.	8:15 p.m.	0.90	4:02 p.m.	4:23 p.m.	0.06	0.08	0.23	0.42	0.58	0.63	.....	.....	.....	.....	.....	.....	.....	.....	.....
Huron, S. Dak.	18-19	.....	.....	0.26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.16	0.16	0.16
Independence, Cal.																					

\* Self-register not in use.

† Partly estimated.

**†** No precipitation occurred during month.

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during October, 1916, at all stations furnished with self-registering gages—Continued.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Memphis, Tenn.	19			0.31																0.28	
Meridian, Miss.	9			0.33																0.20	
Miami, Fla.	{ 24	D. N. a. m.	9:38 a. m.	1.42	8:11 a. m.	9:00 a. m.	0.35	0.18	0.23	0.33	0.39	0.43	0.53	0.67	0.81	0.94	1.08				
Milwaukee, Wis.	20	9:00 p. m.	9:45 p. m.	0.62	9:00 p. m.	9:13 p. m.	0.00	0.24	0.53	0.61											*
Minneapolis, Minn.	12			1.74																	0.24
Mobile, Ala.	17-18	D. N. a. m.	D. N. a. m.	2.00	3:42 a. m.	4:12 a. m.	0.04	0.21	0.45	0.76	1.03	1.21	1.27								0.30
Modena, Utah	130-1			0.88				1.61												0.67	
Montgomery, Ala.	18																			0.08	
Moorhead, Minn.	7			0.24																0.19	
Mount Tamalpais, Cal.	4			0.19																0.19	
Nantucket, Mass.	19			0.50																0.19	
Nashville, Tenn.	18			1.81																0.25	
New Haven, Conn.	19			1.66																0.45	
New Orleans, La.	{ 8	1:35 p. m.	4:00 p. m.	1.86	1:50 p. m.	2:00 p. m.	0.07	0.18	0.49	0.83	1.12										
New York, N. Y.	19	11:55 a. m.	2:45 a. m.	5.67	8:21 p. m.	8:54 p. m.	1.04	0.24	0.54	0.66	0.84	0.98	1.03								0.17
Norfolk, Va.	9-10	9:45 p. m.	D. N. a. m.	0.64	10:20 p. m.	10:39 p. m.	0.14	0.15	0.32	0.37	0.43										0.25
Northfield, Vt.	20-21			0.58																0.91	
North Head, Wash.	29			0.48																*	
North Platte, Nebr.	23-24			0.47																0.41	
Oklahoma, Okla.	15			0.75																*	
Omaha, Nebr.	19			0.50																0.19	
Oswego, N. Y.	20	5:57 p. m.	8:15 p. m.	0.71	6:08 p. m.	6:28 p. m.	0.01	0.10	0.28	0.48	0.51										
Palestine, Tex.	18			0.38																0.17	
Parkersburg, W. Va.	19			1.03																0.25	
Pensacola, Fla.	18			1.19																*	
Peoria, Ill.	20			1.15																0.22	
Philadelphia, Pa.	19			1.00																0.22	
Phoenix, Ariz.	5			0.60																0.17	
Pierre, S. Dak.	7			0.22																0.38	
Pittsburgh, Pa.	19			1.56																0.19	
Pocatello, Idaho	11			0.80																0.51	
Point Reyes Light, Cal.	3			0.10																0.09	
Port Huron, Mich.	13			0.52																0.18	
Portland, Me.	19			0.87																0.41	
Portland, Oreg.	27			0.43																0.19	
Providence, R. I.	19-20			1.88																0.56	
Pueblo, Colo.	15			0.02																0.01	
Raleigh, N. C.	19			0.95																*	
Rapid City, S. Dak.	21			0.11																0.09	
Reading, Pa.	19			0.90																0.21	
Red Bluff, Cal.	3			0.70																0.39	
Reno, Nev.	6			0.40																*	
Richmond, Va.	19			0.95																0.25	
Rochester, N. Y.	20			0.22																0.21	
Roseburg, Oreg.	30			0.18																0.10	
Roswell, N. Mex.	12	2:57 p. m.	5:25 p. m.	0.74	3:22 p. m.	3:41 p. m.	0.03	0.12	0.39	0.59	0.62										
Sacramento, Cal.	6			0.36																0.18	
Saginaw, Mich.	19			0.88																0.28	
St. Joseph, Mo.	24			6.87																0.29	
St. Louis, Mo.	30	6:44 p. m.	8:10 p. m.	0.68	6:44 p. m.	6:58 p. m.	0.00	0.42	0.55	0.60											
St. Paul, Minn.	12			0.26																0.21	
Salt Lake City, Utah	2			0.81																0.34	
San Antonio, Tex.	16			2.13																0.50	
San Diego, Cal.	23			0.18																0.18	
Sand Key, Fla.	6	10:50 a. m.	11:25 a. m.	0.37	11:05 a. m.	11:18 a. m.	0.01	0.07	0.27	0.35										0.17	
Sandusky, Ohio	19			0.42																0.08	
San Francisco, Cal.	4			0.09																0.24	
San Jose, Cal.	4			0.41																0.17	
San Luis Obispo, Cal.	9			0.57																*	
Santa Fe, N. Mex.	14			0.55																0.23	
Sault Ste. Marie, Mich.	25-26			1.30																	
Savannah, Ga.	18			1.27																0.62	
Scranton, Pa.	20			0.48																0.47	
Seattle, Wash.	26-29			0.45																0.11	
Sheridan, Wyo.	21-22			1.12																*	
Shreveport, La.	17-18			2.16																0.40	
Sioux City, Iowa	19			0.72																*	
Spokane, Wash.	29			0.15																0.00	
Springfield, Ill.	19-20			0.70																*	
Springfield, Mo.	15			0.70																0.42	
Syracuse, N. Y.	20			0.56																0.50	
Tacoma, Wash.	29			0.69																0.21	
Tampa, Fla.	6			0.34																0.29	
Tatosh Island, Wash.	28			1.49																0.29	
Taylor, Tex.	16			0.77																0.45	
Terre Haute, Ind.	20			0.60																0.44	
Thomasville, Ga.	18	8:20 a. m.	4:32 p. m.	4.22	12:26 p. m.	1:16 p. m.	0.55	0.07	0.14	0.20	0.28	0.33	0.38	0.43	0.49	0.64	0.78				
Toledo, Ohio.	20			0.81																0.48	
Tonopah, Nev.	2			0.98																*	
Topeka, Kans.	24			1.65																0.34	
Valentine, Nebr.	18-19			0.30																*	
Vicksburg, Miss.	18			0.95																0.25	
Walla Walla, Wash.	27			0.34																0.11	
Washington, D. C.	19			1.24																0.33	
Wichita, Kans.	15-16	8:40 p. m.	D. N. a. m.	1.16	8:48 p. m.	9:11 p. m.	0.01	0.09	0.27	0.67	1.02	1.12								*	
Williston, N. Dak.	3			0.50																	
Wilmington, N. C.	19	9:40 a. m.	2:20 p. m.	1.74	11:20 a. m.	Noon....	0.12	0.16	0.25	0.32	0.50										

TABLE III.—*Data furnished by the Canadian Meteorological Service, October, 1916.*

Stations.	Altitude above M. S. L.* Jan. 1, 1916.	Pressure in inches.			Temperature.					Precipitation.			
		Station reduced to mean of 24 hours.	Sea level reduced to mean of 24 hours.	Depart- ture from normal.	Mean max. + mean min. + 2.	Depart- ture from normal.	Mean maximum.	Mean minimum.	Highest.	Lowest.	Total.	Depart- ture from normal.	Total snowfall.
		Fect.	Inches.	Inches.	°F.	°F.	°F.	°F.	°F.	°F.	Inches.	Inches.	Inches.
St. Johns, N. F.	125	29.81	29.95	+0.04	46.5	+1.1	52.9	40.1	70	28	4.14	-1.21	-----
Sydney, C. B. I.	48	30.03	30.07	+ .11	50.2	+3.7	59.0	41.3	79	30	4.16	-0.53	-----
Halifax, N. S.	88	29.98	30.09	+ .09	49.9	+2.7	59.6	40.3	78	25	4.72	-0.83	-----
Yarmouth, N. S.	65	30.02	30.09	+ .07	48.3	+0.7	56.5	40.0	67	27	3.18	-1.52	-----
Charlottetown, P. E. I.	38	30.01	30.05	+ .09	48.6	+2.1	55.7	41.5	73	30	3.55	-1.36	-----
Chatham, N. B.	28	30.03	30.05	+ .09	46.2	+3.2	56.0	36.4	82	26	4.07	+0.21	-----
Father Point, Que.	20	30.01	30.03	+ .08	40.6	+0.8	46.9	34.2	63	23	3.23	+0.33	7.6
Quebec, Que.	296	29.75	30.08	+ .08	43.5	+1.1	50.9	36.1	71	25	5.57	+2.42	1.0
Montreal, Que.	187	29.86	30.07	+ .06	47.1	+2.3	54.9	39.3	74	28	3.84	+0.71	0.2
Stonecliffe, Ont.	489	29.44	30.06	+ .05	43.2	+0.4	52.9	33.6	83	27	2.85	+0.42	2.2
Ottawa, Ont.	236	29.81	30.08	+ .07	45.9	+2.1	55.8	35.9	78	26	3.88	+0.33	T.
Kingston, Ont.	285	29.78	30.09	+ .06	50.5	+3.5	58.8	42.1	75	28	2.87	-0.06	-----
Toronto, Ont.	379	29.67	30.05	+ .01	49.5	+2.9	59.6	39.5	85	30	3.91	+1.55	-----
White River, Ont.	1,244	28.64	29.98	.00	34.9	-2.2	44.3	25.6	72	11	1.33	-1.02	12.0
Port Stanley, Ont.	592	29.46	30.10	+ .05	47.8	0.0	57.8	37.9	69	27	3.81	+0.83	-----
Southampton, Ont.	656	29.34	-----	-----	48.1	+2.0	57.4	38.9	80	30	4.09	+0.92	-----
Parry Sound, Ont.	688	29.35	30.05	+ .04	40.1	+2.2	54.9	37.4	76	27	5.73	+1.81	0.4
Port Arthur, Ont.	644	29.27	29.98	.00	41.5	+1.6	49.0	34.0	69	20	2.40	-0.16	3.3
Winnipeg, Man.	700	29.17	30.02	+ .04	37.1	-2.0	45.1	29.2	65	14	2.32	+0.62	9.7
Minnedosa, Man.	1,690	28.16	30.02	+ .05	35.3	-2.5	43.5	27.2	64	4	3.00	+1.80	15.4
Qu'Appelle, Sask.	2,115	27.68	29.97	.00	35.6	-3.8	44.1	27.0	72	12	2.78	+1.68	25.5
Medicine Hat, Alberta.	2,144	27.68	29.98	+ .01	43.0	-1.8	53.7	32.3	78	21	0.57	-0.01	5.4
Swift Current, Sask.	2,392	27.38	29.99	+ .02	38.6	-3.5	49.5	27.7	75	12	1.11	+0.23	8.7
Calgary, Alberta.	3,428	26.43	30.00	+ .05	41.5	+1.4	53.3	29.7	74	18	1.20	+0.72	11.4
Banff, Alberta.	4,521	25.40	30.02	+ .07	37.8	-1.5	47.0	28.5	64	14	1.24	+0.22	6.9
Edmonton, Alberta.	2,150	27.63	29.93	.00	41.0	-0.1	51.1	31.0	72	20	0.34	-0.36	0.9
Prince Albert, Sask.	1,450	28.38	29.98	- .01	35.9	-1.2	45.2	26.5	64	11	1.88	+1.05	4.2
Battleford, Sask.	1,592	28.19	29.95	- .02	40.1	+0.5	50.5	29.6	71	21	0.71	+0.26	2.7
Kamloops, B. C.	1,262	28.85	30.17	+ .21	45.3	-1.7	56.1	34.4	72	24	0.06	-0.55	-----
Victoria, B. C.	230	28.88	30.14	+ .13	49.2	0.0	55.4	43.0	67	38	1.56	-0.81	-----
Barkerville, B. C.	4,180	25.75	30.11	+ .17	35.2	-4.5	43.2	27.2	46	4	1.00	-1.70	2.2
Hamilton, Bermuda.	151	29.95	30.11	+ .09	74.1	+1.1	78.8	69.4	82	64	3.08	-3.63	-----

\*The altitudes given above were furnished by the Director of the Canadian Meteorological Service, Mar. 9, 1916, and refer to cisterns of barometers at the respective stations. Where sea-level pressures and departures are italicized new reduction factors are in course of computation.—C. A., Jr.